

TROUBLE SHOOTING GUIDE - PART II

SURFACE DEFECTS

2.1 POWDER PUFFS ON THE WORK PIECE

Powder puffs are clusters that in an improperly fused condition are visible as powder hills in the powder film. After curing these powder puffs appear as disturbing elevations on the surface.

Possible Causes	Explanation
Powder hose too long or diameter too large	Change hose diameter, shorten hose
Powder too fine	Add virgin powder
Powder falls off booth ceiling	Adjust frequency of booth cleaning
Powder falls of work piece	Test grounding, check diameter oh hoses
Fluidizing plate clogged / defective	Clean plate or renew
Powder contains too much fines	Check if enough fresh powder is in circuit

2.2 CRATERS

Defect – blank area in the powder coat, which extends all the way to the substrate.

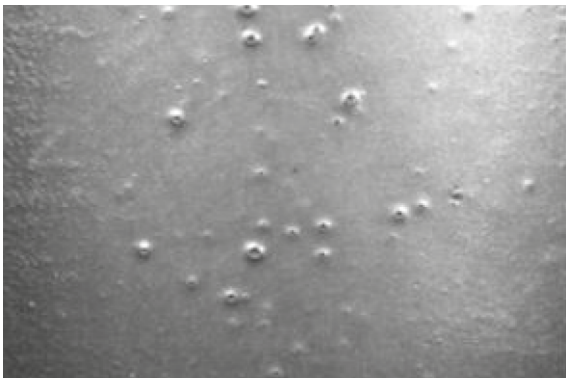
Possible Causes	Explanation
Insufficient pre-treatment (oil and grease)	Test pre-treatment especially the last rinse
Rust	Assure clean surfaces
Finger prints	Do not touch pre-treated material
Incompatibility with other powders	Clean the facility, contact powder supplier
Work piece moist/wet	Increase drying time
Liquid and powder paint in the same area	Definitely avoid – reconfigure plant
Base coat was cleaned with solvent	Preheat work piece and avoid solvents
Silicone contamination	Locate and remove source

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2.3 PINHOLES

Fine pores on the surface, also leads to change in gloss level.

Possible Causes	Explanation
Silicone contamination	Locate and remove source
Oil contamination	Check degreasing plant
Moisture content of powder too high	Check oil/water separators on air supply
Film build too high	Minimize film thickness (Primid powders are very critical to that)
Very porous work pieces	Check for satisfactory work pieces, possible surface is too rough from sand blasting.
Incompatibility with other powders	Clean the facility, contact powder supplier



2.4 PICTURE FRAMING EFFECT

Higher film build of coating on the edges of the part due to wrap, therefore uneven flow.

Possible Causes	Explanation
Voltage too high	Adjust voltage
Distance between gun and part too short	Adjust distance
Feed air/powder flow too high	Adjust powder flow

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2.5 CONTAMINATION OF COLOUR

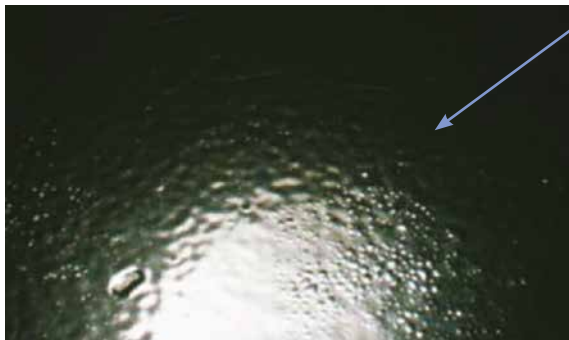
Points of other colours appear in the surface.

Possible Causes	Explanation
Poor housekeeping, when colour changing	Totally clean plant
Cross contamination at manufacture	Contact powder supplier
Contamination from equipment cleaning	Vacuuming is more effective than air
Deposits from dust and particles in the oven	1. Do not cure other colour at the same time 2. Reduce air speed
Deposits of dust and powder on cured object	Adjust voltage; consult powder supplier

2.6 BLISTERING

Elevations of different size in the powder coat, no adhesion due to enclosures at the paint surface.

Possible Causes	Explanation
Water on work piece	Check and adjust dryer
Water residues in complicated shapes	Optimize hangers
Residues of oil, grease and rust	Optimize pre treatment
Salt residues or chemical remnant on	Check pre treatment, final rinse zone



2.7 POOR ADHESION

Possible Causes	Explanation
Under cure film	1. Increase oven temperature 2. Decrease line speed
Poor pre-treatment	Check pre-treatment

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2.8 ORANGE PEEL

Poor flow, short or long waviness of powder coat layer, noticeable only after curing.

Possible Causes	Explanation
Heat up cycle of parts too slow	Determine heat up curve and increase
Substrate temperature exceeds the melt temperature of the powder, causing	Check substrate temperature
Powder coating material too reactive	Consult supplier
Film thickness too high or low	Check system parameters
Incompatibility with other powder	Clean booth, check compatibility
Voltage too high	Optimize voltage
Textured work piece surface	Optimize texture, check work piece surface
Unsuitable particle size distribution	Optimize particle size

2.9 INSUFFICIENT WET OUT OF THE SUBSTRATE

Poor or no adhesion of powder coat to the parts surface, large area lifting of cured powder coat.

Possible Causes	Explanation
Pre-treatment residues	Final rinse de-ionised water
Displaced oils or greases in pre-treatment excessive film build	Pre-treatment, check oil separator
Gummed oils, greases or separating compounds, insoluble extrusion oils	Check pre-treatment

2.10 GLOSS TO HIGH

Possible Causes	Explanation
Cure temperature too low	1. increase air temperature 2. decrease line speed
Oven cycle too short	1. decrease line speed 2. increase oven temperature

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2.11 GLOSS TO LOW

Possible Causes	Explanation
Cure temperature too high	<ol style="list-style-type: none">1. decrease air temperature2. increase line speed
Oven cycle too short	<ol style="list-style-type: none">1. increase line speed2. decrease oven temperature
Contamination with a powder which is incompatible	Clean all equipment

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